

REMARKS

Claims 1 - 59 are currently pending in the present application. Claims 1 – 59 stand rejected under 35 U.S.C. §103(a). In light of the remarks set forth below, reconsideration of the rejections set forth in the outstanding office action is respectfully requested. The following remarks are believed to be fully responsive to the outstanding Office Action and to render all claims at issue patentably distinct over the references cited.

REJECTION UNDER 35 U.S.C. §103

Claims 1-32, 39, and 42-45 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Johnson et al. (U.S. 5,126,089) in view of Madono (U.S. 4,584,328). Claims 33-38, 40-41 and 46-59 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Johnson et al. (U.S. 5,126,089) in view of Madono (U.S. 4,584,328) and further in view of Hoffman Jr. et al. (U.S. 6,264,823) These rejections are respectfully traversed.

With regard to Claims 1-32, 39, and 42-45, Johnson, et al. (U.S. 5,123,089) hereinafter “the Johnson reference” in view of Madono (U.S. 4,584,328), hereinafter “the Madono reference” do not individually or in combination disclose, suggest, or render obvious Claims 1-32, 39, and 42-45. For example, independent Claims 1, 22, and 32 from which Claims 2-21, 23-31, and 42-45 depend, each include a representative limitation requiring a foundry casting material comprising a foundry sand, a binder, and

a disintegration additive. The Johnson reference fails to disclose or suggest including a disintegration additive, and provides no motivation to do so.

The Madono reference teaches use of a plastic microencapsulated additive for use in a phenolic resin bonded core. The Madono reference teaches that the additive must be protected with a coating to overcome various disadvantages associated with an uncoated additive, including potential contact with moisture that could reduce the strength of the core. See for example, the Madono reference at col. 2 lines 24 – 34. Thus, one of the stated objectives of the Madono reference is to prevent the additive from becoming wet, *inter alia*.

“References that teach away from one another cannot serve to create a prima facie case of obviousness.” McGinley v. Franklin Sports Inc., 60 USPQ.2d 1001, 1010 (Fed. Cir. 2001) *citing* In re Gurley, 31 USPQ.2d 1131, 1132 (Fed. Cir. 1994).

“When the Examiner proposes a combination that makes a prior art reference inoperable for its intended purpose, the resulting inoperable prior art reference may be considered to teach away from the proposed combination, i.e., not to teach the combination, thereby supporting a showing of nonobviousness.” *In re Gordon*, 221 USPQ 1225,1227 (Fed. Cir. 1984).

It would not be obvious to combine the water-resistant microencapsulated compounds disclosed in the Madono reference with the Johnson reference that teaches exposure of a core material to water-laden (humid) air to achieve degradation. Rather, the Madono reference teaches away from contacting the core with water, because it reduces the core’s strength. To avoid this consequence, the Madono reference teaches prophylactically protecting the additive from water. The Johnson reference teaches

exposing a casting material (without any additive) to vaporized water to achieve reduction in strength of the core. The additive in the Madono reference would render the Johnson reference inoperable. Thus, it is non-obvious to combine the Johnson reference with the Madono reference to arrive at the claimed subject matter in Claims 1-32, 39, and 42-45.

Claims 33-38, 40-41, and 46-59 also stand rejected as being obvious in light of the Johnson reference in view of the Madono reference and further in view of Hoffman Jr., et al., (U.S. 6,264,823) hereinafter "the Hoffman reference". For the same reasons as described above, it is not obvious to combine the Johnson reference with the Madono reference because there is no motivation to combine a water resistant additive in the Madono reference with a process that relies upon reaction with vaporized water to degrade a core material in the Johnson reference. The Hoffman reference relates to cleaning rust, scale, smut, petroleum derived contaminants, oils, greases, flux, carbonization, nonmetallic coatings, corrosion, paint, and dirt from a metal part, such as jewelry, grocery carts, metallic brake shoes, and electronic circuit boards (generally to enable recycling or reuse). See Hoffman col. 1, lines 29-34, for example. There is no teaching or suggestion to use an apparatus to form a metal part with a mold comprising sand, binder, and a disintegration additive, as required by Claims 33-38, 40-41. Likewise, there is no teaching nor suggestion in the Hoffman references to remove residual casting material comprising sand, binder, and a disintegration additive which are limitations in each of Claims 46-59.

"Obviousness cannot be established by combining the teachings of the prior art to produce the claimed invention, absent some teaching suggestion or incentive

supporting the combination.” *In re Geiger*, 2 USPQ.2d 1276, 1278 (Fed. Cir. 1987). Here, there is no suggestion or motivation to combine the Hoffman reference with either the Johnson reference or the Madono reference. It would not be obvious to combine an apparatus in the Hoffman reference that teaches cleaning parts by immersing or contacting the target piece with water and electrolytes with the water-resistant microencapsulated alkali metal additive compounds disclosed in the Madono reference. The Madono reference has an objective of protecting the additive from water which contravenes the mechanism by which Hoffman operates. See for example, the Hoffman reference col. 6 lines 51-52 and 64-65. Indeed, the Hoffman reference teaches away from combining with the Madono reference, and there is no suggestion or incentive to lead one of skill in the art to combine Hoffman with the Johnson reference, and as such no combination teaches, suggests, or renders obvious Claims 33-38, 40-41, and 46-59.

There is no suggestion or motivation to combine the cited references, and therefore, the claims at issue are patentably distinct over the cited references. The Examiner has not met the burden to establish a *prima facie* case of obviousness with respect to Claims 1 -59. Applicants respectfully request the Examiner withdraw the obviousness rejection and allow Claims 1 -59.

CONCLUSION

It is believed that all of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Applicant therefore respectfully requests that the Examiner reconsider and withdraw all presently outstanding rejections. It is

believed that a full and complete response has been made to the outstanding Office Action, and as such, the present application is in condition for allowance. Thus, prompt and favorable consideration of this amendment is respectfully requested. If the Examiner believes that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at (248) 641-1600.

Respectfully submitted,

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